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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/730,188	12/05/2000	Kazushi Takanashi	33152	7999
116	7590	05/31/2006		
PEARNE & GORDON LLP 1801 EAST 9TH STREET SUITE 1200 CLEVELAND, OH 44114-3108			EXAMINER ZHENG, EVA Y	
			ART UNIT 2611	PAPER NUMBER

DATE MAILED: 05/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/730,188

Applicant(s)

TAKANASHI ET AL.

Examiner

Eva Yi Zheng

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 May 2006.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 6,7,11-13 and 20-26 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☒ Claim(s) 7,11-13,20-22,25 and 26 is/are allowed.
6) ☒ Claim(s) 6,23 and 24 is/are rejected.
7) ☒ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 05 December 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. In view of the Amendment after final filed on 5/2/06, allowable subject matter has been withdrawn, therefore PROSECUTION IS HEREBY REOPENED set forth below.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the detector means of claims 11-13 and 20-22 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner,

the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 6, 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant Admitted Prior Art (AAPA) in view of Bhatt et al. (US 5,517,213), further in view of Zangi et al. (US 6,608,862).

a) Regarding to claims 6, 23 and 24, AAPA disclose a waveform equalizer comprising:

an equalizing filter unit including a delay circuit with a tap (block 9 and 10 in Fig. 15);

a discriminator which decodes an output signal of said equalizing filter unit (block 5 in Fig. 15);

tap arrangement control means which controls a tap arrangement of said equalizing filter unit (block 8 in Fig. 15; Page 1, L16 - Page 2, L8).

AAPA discloses all of the subject matter as described above except for specifically teaching of (1) a tap coefficient monitoring unit which monitors a tap coefficient of the equalizing filter unit, and changes the tap arrangement of the equalizing filter unit so as to restart a starting step of equalizing steps for equalizing a reception signal. (2) an impulse response device for predicting an impulse response of a transfer path.

For (1), Bhatt et al., in the same field of endeavor, teaches an equalizer processor (20 in Fig.1) being controlled by coefficient control network (80 in Fig. 1), which constitutes tap coefficient monitoring unit (as shown in Fig. 2). It monitors tap coefficients of the adaptive equalizer, and if the coefficients have not converged, then the equalization is reinitiated (Col 3, L47-Col 4, L24). By providing a tap coefficient controller to an equalizer processor would optimize and proper operation of tap arrangement. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the coefficient control network processor taught by Bhatt et al. with the waveform equalizer taught by AAPA. By doing so, the waveform equalizer has better performance while transfer path varies and improve multipath fading problems.

For (2), Zangi et al., in the same field of endeavor, teaches a channel estimator detects impulse response in an equalizer system (109 in Fig. 3). The impulse response is determined based on the received signal and outputted to control equalizer. The equalizer receive impulse response for desired filter (Col 7, L9-27). Therefore, it is obvious to one of ordinary skill in art to implement the channel estimator from Zangi's

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teaching in the waveform equalizer of AAPA. By doing so, generate desirable tap coefficients in a waveform equalizer.

Allowable Subject Matter

5. Claims 7, 11-13, 20-22, 25 and 26 are allowed.
6. The following is an examiner's statement of reasons for allowance:

None of the prior art teaches or suggests a waveform equalizer comprises an impulse response predicting device for predicting an impulse response of a transfer path; and tap arrangement becomes optimum with respect to an impulse response predicted by both the equalized output of said discriminator and a condition of the reception signal. In addition, a detector means for detecting a moving speed of the mobile station with a threshold value; tap arrangement is changed when the moving speed is higher than the threshold hold.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eva Y Zheng whose telephone number is 571-272-3049. The examiner can normally be reached on M-F, 7:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on 571-272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Eva Yi Zheng
Examiner
Art Unit 2611

May 23, 2006


CHIEH M. FAN
SUPERVISORY PATENT EXAMINER